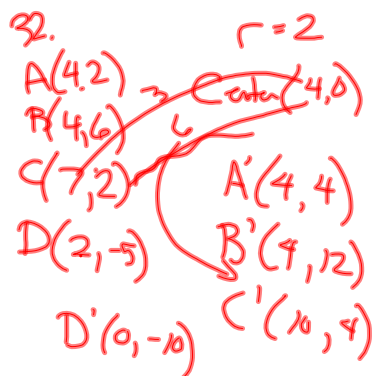


9.5 Apply Compositions of Transformations

Glide reflection--transformation that is a translation followed by a reflection

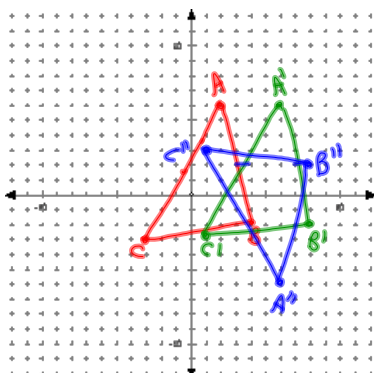
When two or more transformations are combined, then the result is a composition of transformations.



$A(2, 6)$ $B(4, -2)$ $C(-3, -3)$
Find the image of the triangle after the translation $(x, y) \rightarrow (x+4, y)$ and then the reflection in the x-axis.

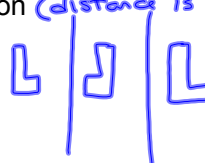
$A'(6, 6)$
 $B'(8, -2)$
 $C'(1, -3)$

 $A''(6, -6)$
 $B''(8, 2)$
 $C''(1, 3)$



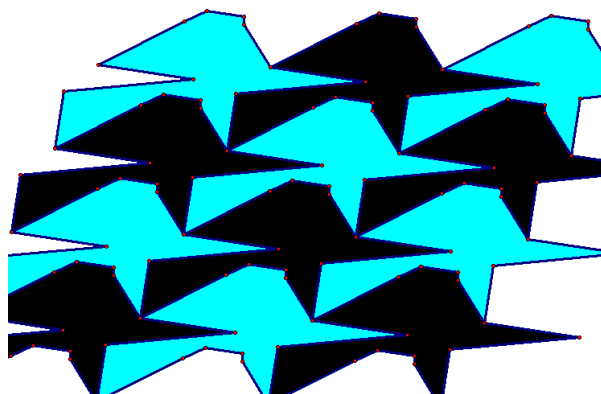
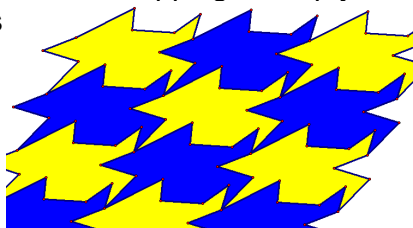
Reflections in parallel lines--same as a translation (distance is double the distance b/w parallel lines)

gsp



Reflections in intersecting lines--same as a rotation about the intersection where the angle of rotation is 2 times the acute or right angle of intersection

Tessellation--a pattern that covers a plane by transforming the same figure, or a set of figures, so that there are no overlapping or empty spaces



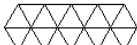
Not all shapes will tessellate.

Parallelogram

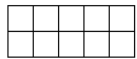
Equilateral Triangle

Hexagon

a tessellation of triangles



a tessellation of squares



a tessellation of hexagons

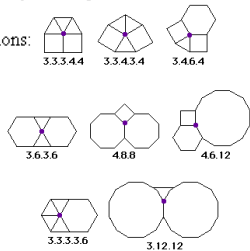


Semi-regular Tessellations

You can also use a variety of regular polygons to make **semi-regular tessellations**. A semiregular tessellation has two properties which are:

- 1. It is formed by regular polygons.
- 2. The arrangement of polygons at every vertex point is identical.

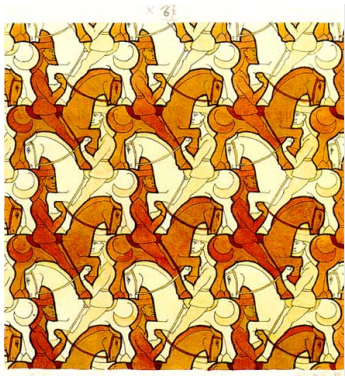
Here are the **eight** semi-regular tessellations:



<http://www.tessellations.org/index.htm>



Squirrels



Horsemen





Smaller and smaller

[http://www.shodor.org/interactivate/activities/tessellate/?version=1.5.0_04
&browser=MSIE&vendor=Sun_Microsystems_Inc.](http://www.shodor.org/interactivate/activities/tessellate/?version=1.5.0_04&browser=MSIE&vendor=Sun_Microsystems_Inc.)

Do on your own.

<http://www.tessellations.org/slicemethod-ex1-1.htm>

<http://www.geogebraTube.org/material/show/id/8550>

dogs--click line and tile, then the parts

<http://www.geogebraTube.org/material/show/id/4378>

Pegasus--click on points
in left corner and
translate

HW

p611-612

#s 3, 5, 6, 10, 13, 14, 20, 21

Attachments

1936-squirrels[1].jpe

9_5reflections_ex.gsp